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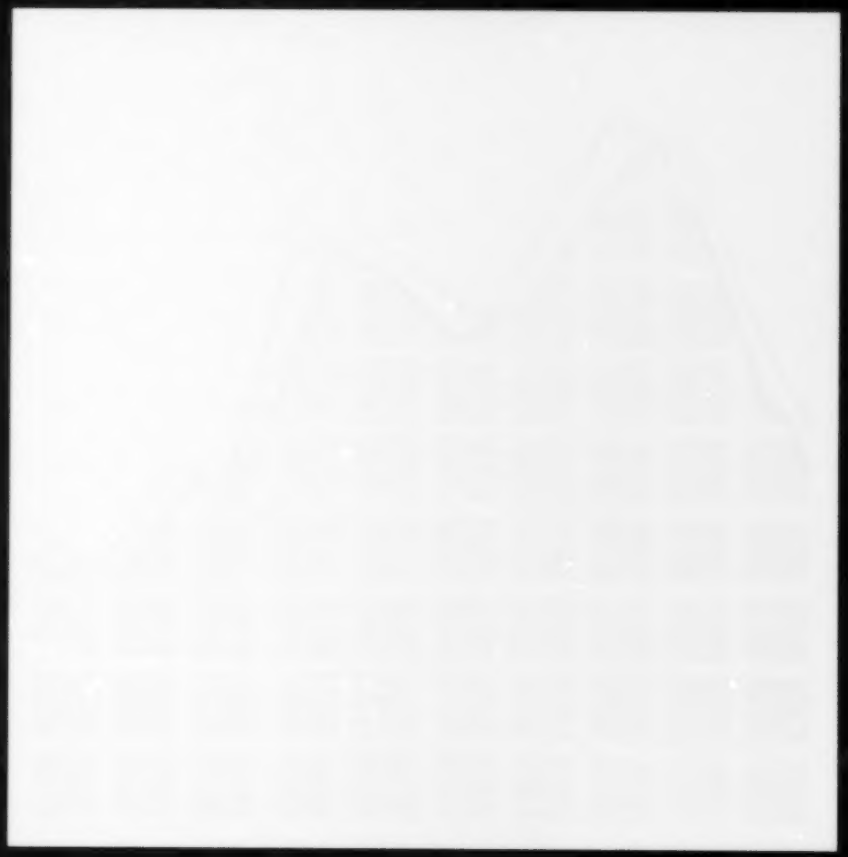
FUTURES MARKETS



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THE FUTURES MARKETS

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THE FUTURES MARKETS

FOREWORD

The futures prices you hear quoted on the farm market report are general indicators of where commodity prices are headed. They are the best forecast available on a given day, and excellent pricing tools you can use to your benefit. You don't have to buy or sell a single contract to take advantage of the information futures markets provide.

As a farmer, you want to minimize price uncertainties and get the best price possible for your goods. The more you know about the marketplace, in which futures play an important role, the more control you'll have over your selling price.

Following futures prices is not an exact science. Commodity prices will always be subject to change due to weather, strikes, pests and diseases, and the buying power of consumers. Nothing's certain, except that by knowing price trends, you'll have more control over your income than if you just dump your product at the going price when bills come due.

This manual is designed to help you understand how the futures markets function, how futures prices can be charted, and what various chart formations mean.

A word of caution: we don't expect or encourage you to start trading contracts--very few farmers in Ontario ever should or will. But everyone is affected by futures markets, and in that sense, you automatically have a stake in understanding them. Moreover, an understanding of the futures market can be of tremendous benefit in the timing of physical cash sales or input purchases.

The reader will notice that the "hedging" process, including a discussion of Ontario/U.S. "basis patterns", is not covered in this publication. This, along with the use of the newer options on agricultural futures, will be the subject of two further publications through the joint efforts of the University of Guelph and the Ontario Ministry of Agriculture and Food.

PART 1: THE FUTURES MARKETS

WHAT IS A FUTURES MARKET?

A futures market is a highly regulated institution where contracts for the future purchase and sale of commodities are exchanged. The Chicago Board of Trade is the largest centre for futures trading in North America.

One way of understanding today's commodity futures is to look back at the conditions that led to their creation.

A BRIEF HISTORY

Futures for corn and wheat developed in Chicago in the mid 1800's to overcome the twin problems of price and finance risk. The mid-west was just beginning to open up, and transportation and communication routes for corn and wheat were primitive and unreliable.

For the river elevators, this meant that the price of grain could rise before they bought and drop before they sold. And in the absence of grading and delivery standards, there was no guarantee that the grain they received--if they received it at all-- would be the quality they had bargained on.

In the area of financing, the river elevators risked not receiving payment for their sales and not receiving the credit necessary to purchase inventory.

Their initial solution was to sign forward delivery contracts with terminal elevators in Chicago. These contracts, which specified price and quantity, effectively transferred the risk from the river elevators to the Chicago terminals. It was now the terminals who faced unstable markets and prices--made even greater with wars during the 1850's. The terminals responded by discounting the price on the contracts. This created a price gap between themselves and the river elevators and farmers upstream.

Eventually, the size of the discount grew large enough that people outside the grain trade became interested in owning the forward delivery contracts. They had no intention of ever receiving the actual grain, but hoped to make a profit from favourable price moves over the time they owned the contracts.

Here's an example adapted from the economist, Thomas Hieronymus...

In January a speculator buys a contract for corn to be delivered in June. The buyer pays the current (January) price, hoping that by June the selling price would rise. In March, he notices that the price per bushel has already climbed 5 cents per bushel above the price he paid in January. At this point, he decides to "cash in his chips" because he is guaranteed a profit. He then sells his contract to another speculator, who assumes the risk and potential for future profit.

As more people got involved, contracts changed hands several times before the corn was actually delivered. Eventually the market grew large enough (and enough problems arose) that it came time to formalize rules and procedures for futures trading.

In 1948, the Chicago Board of Trade was established to provide a centralized marketplace where buying and selling could proceed in an orderly, regulated fashion. The development of a formal, regulated futures market provided an arena for businesses to establish prices and for speculators to take their shot at riches.

Today there are major commodity exchanges in

commercial centres throughout North America, the largest being Chicago. Futures contracts are traded on over 40 commodities, ranging from live hogs to frozen orange juice.

We have seen how the futures markets evolved in response to problems of pricing, price risk and financing when the American mid-west was becoming the wholesale centre of the United States. Let's look now at the influence of the futures markets on today's economy.

THE ECONOMIC FUNCTIONS OF FUTURES MARKETS

Here are the main functions of the futures markets:

* **pricing**

  The market, because it is large and well regulated, provides a mechanism by which users, producers, processors and inventory holders can establish prices for product to be traded at some future time.

* **risk shifting**

  Producers, handlers and processors can use the futures markets today to reduce the level of price risk they are carrying on commodities and products they cannot buy or sell until sometime in the future.

* **provision of financing**

  Because the futures markets can be used to reduce price risk, lenders in turn are less likely to have bad loans. Lenders have less repayment risk if the price of inventories, or crops in the field, are established in advance of their actual sale. As a result, lenders are willing to loan a higher proportion of the value of product.

  When a high proportion of the value of inventories can be borrowed, the holder can control a larger volume of product with the equity capital available.

* **market information**

  Market information can be broken into two areas: the background information produced for traders to use and the information held within the price numbers themselves.

  Like many other industries, the futures market has its own service industry: the information market. Futures traders want the best possible information and are willing to pay for it because better information leads to better profits. Much of this information becomes available to the general public, either for free or at some price. It helps the agricultural industry make more informed decisions.

  The second aspect of the information market is that it improves the accuracy of both private and public information. For instance, with professional futures traders scrutinizing the reports of government agencies, mistakes and discrepancies are found, reported and corrected.

  The futures prices are themselves information. The futures market is a forecast of where the prices are believed to be headed. This is a result of many traders acting with the best of their skill in response to all of the information available to them. The futures market constantly provides a price forecast based on the best information currently available. This information allows investors, whether they are speculators, commercial operators or farmers, to make better decisions.

In summary, the futures markets perform four major economic functions: they provide a mechanism for **establishing prices**, they help

producers, processors and distributors to **control risk**, they make **financing** more readily available and they provide a great quantity of **market information**. Clearly, even if you do not use the futures markets directly, they can be of use to you.

HOW A FUTURES MARKET WORKS

This section gives a quick description of the who, what, where, when and how of commodity futures trading.

WHO TRADES

Traders of futures can be classified as either **speculators** or **hedgers**.

Speculators are the people who attempt to profit by forecasting price changes. The speculator could be the professional floor trader, your dentist or the neighbour down the road--anyone trying to make a dollar by correctly predicting the direction of price changes.

The speculator plays a very important role in the futures markets. Most of the trading is done by speculators. Without them, the market would be so small that trading would not be as efficient as it is now. The speculator is like grease on a wheel, making the whole market machinery work smoothly.

The speculator is also very important to the risk shifting function of the futures markets. Those people who are using the futures markets to protect themselves from adverse price movements pass on their risk to speculators. Thus, speculators are often called **equity financiers**.

The **hedger**, on the other hand, is anyone who produces, processes or uses commodities and uses the futures markets to control price risk by establishing futures positions which are opposite to their cash positions. This group--which includes farmers, feedlot and elevator operators, and processors--wants to insulate themselves against potential adverse price movements of the futures market, which could jeopardize the profitability of their operation.

WHAT IS TRADED

Before we can describe how a futures market functions, we must explain what a **futures contract** is. A futures contract is a **commitment** to buy or sell a set quantity and quality of a commodity at a precise time **in the future** at a **freely negotiated price**.

The following example gives the basic features of a futures contract. If you understand this, you understand the principles of a modern futures contract.

I am planning to build a house in May. While I'm in town one day in December, I meet a local contractor. I mention to the contractor that I would like to find someone who can guarantee to have all of the lumber needed in my yard by the 15th of April. Not only that, but I want a certain type of lumber to be used in the construction.

The contractor asks how much I would be willing to spend. After a few minutes of negotiating, we agree on a price. We write up a contract that says the contractor will deliver lumber to my yard on the 15th of April at the price we agreed upon.

The important points to this contract are:

- the contract concerns a transaction that will happen on the 15th of April
- the lumber must be delivered to a specific place--my yard
- a specific amount of lumber is contracted--enough to build my house
- the lumber must be of a certain grade
- the price has been established at the time that the contract was drawn up.

A futures contract covers the same points: time, place, quantity, quality and price are established for a transaction that will happen sometime in the future.

Let's take a look at the fine print on a December corn futures contract.

The corn contract specifies that the holder has committed to either buy or sell 5000 bushels of #2 yellow corn and that the corn will be in Chicago sometime during the month of December. The price of the corn is negotiated at the time that the contract is made.

Commodity:	corn
Quality:	US #2
Quantity:	5000 bu.
Delivery Place:	Chicago
Delivery Time:	December
Price:	Negotiated

The futures contract specifies the commodity, quality, quantity, place of delivery, the time of delivery and the price.

Table I on the following page outlines the contract specifications for various commodity futures contracts.

WHERE THE CONTRACTS ARE TRADED

Trading of futures contracts is done on the floor of a commodity exchange. Trading can be done only by members or their representatives. The number of memberships to any one exchange is limited.

Most market participants trade as non-members through a broker, who is a representative of a member of the exchange.

Exchanges in North America are located in Chicago, New York, Kansas City, Minneapolis, Winnipeg, Toronto and Montreal. Here are the commodities they trade in:

Chicago:	grains, livestock, metals, wood, foreign exchange, U.S. and world interest rates, stock indices
New York:	metals, foods, fibres, energy
Kansas City:	grains, stock indices
Minneapolis:	grains
Winnipeg:	Canadian grains, oilseeds
Toronto:	TSE stock indices
Montreal:	Canadian interest rates

Trading can occur only during certain hours of the day. No trades are allowed before the opening bell of the morning or after the closing bell of the afternoon. These rules are strictly enforced. Night sessions have also been recently introduced to accommodate traders in some financial contracts.

WHEN THE CONTRACTS MATURE: DELIVERY MONTHS

If you look at the commodity prices listed in the newspaper, you will soon notice that several months are listed for every commodity group.

For example, under CORN you will see the months of March, May, July, September and December listed and under CATTLE you will see February, April, June, August, October and December. These are the "future times" that a futures contract can be used for. The months in which a contract is available for any commodity is known as the **delivery month**.

Another term used with futures contracts is **maturity**. Contracts are said to mature in the delivery month for which they are named. This means the commitment to deliver the commodity or to take delivery of the commodity becomes due, or matures.

For instance, the December corn contract matures in December. During the month of December, a trader can actually make or take delivery of corn with a December corn contract. The delivery period does not cover the entire month. It extends from the first day of the

Table I
Specifications for Selected Commodity Futures Contracts

CORN	**Exchange**	**Grades Deliverable**	**Delivery Points**		
	CBOT	*No. 2 Yellow Corn**	*At "regular warehouses located in the Chicago, Illinois Switching District."*		
	Delivery Months	**Quantity Traded**	**Minimum Change**	**Position Limits**	**Trading Hours**
	MAR, MAY, JUL, SEP, DEC	*5,000 bushels*	*1/4 cent per bushel*	*3 million bushels***	*9:30 am to 1:15 pm*
SOY	**Exchange**	**Grades Deliverable**	**Delivery Points**		
	CBOT	*No. 2 Yellow Soybeans**	*By registered warehouse receipt issued by an Exchange-approved "regular warehouse".**		
	Delivery Months	**Quantity Traded**	**Minimum Change**	**Position Limits**	**Trading Hours**
	JAN, MAR, MAY, JUL, AUG, SEP, NOV	*5,000 bushels*	*1/4 cent per bushel*	*3 million bushels***	*9:30 am to 1:15 pm*
WHEAT	**Exchange**	**Grades Deliverable**	**Delivery Points**		
	CBOT	*No. 2 Soft Red, No. 2 Hard Red Winter, Nos. 1,2 Spring**	*At Exchange-approved warehouses in Chicago and Toledo (at discount) Switching Districts.**		
	Delivery Months	**Quantity Traded**	**Minimum Change**	**Position Limits**	**Trading Hours**
	MAR, MAY, JUL, SEP, DEC	*5,000 bushels*	*1/4 cent per bushel*	*3 million bushels***	*9:30 am to 1:15 pm*
CATTLE	**Exchange**	**Grades Deliverable**	**Delivery Points**		
	CME	*USDA Grade 1,2,3,4 Choice between 1050 and 1200 lbs.**	*Par delivery at Peoria and Joliet, Illinois, Omaha, Neb., Sioux City, Iowa, Greeley, Col.**		
	Delivery Months	**Quantity Traded**	**Minimum Change**	**Position Limits**	**Trading Hours**
	FEB, APR, JUN, AUG, OCT, DEC	*40,000 pounds*	*2 1/2 cents per 100 lbs.*	*24 million pounds***	*9:05 am to 1:00 pm*
HOGS	**Exchange**	**Grades Deliverable**	**Delivery Points**		
	CME	*USDA Grade 1,2,3,4 Choice between 200 and 230 lbs.**	*Par at Peoria, Ill.; $0.25 discount at Omaha, Neb., St. Louis, Ill., Souix City, Iowa, St. Paul, Minn.**		
	Delivery Months	**Quantity Traded**	**Minimum Change**	**Position Limits**	**Trading Hours**
	FEB, APR, JUN, JUL AUG, OCT, DEC	*30,000 pounds*	*2 1/2 cents per 100 lbs.*	*22.5 million pounds***	*9:10 am to 1:00 pm*

With differentials for substitutions established by the Exchange.
****Total, over all delivery months. Does not apply for bona-fide hedgers.***

month to the Thursday of the third full business week of the contract month.

The delivery months may seem to have no rhyme or reason, but they do. The delivery months for grain contracts relate to the seasonal patterns of supply and demand.

Let's look at the corn contracts. The December contract represents the first of the **new crop** corn and the last month of the year before the Great Lakes freeze up and boat shipping must stop.

The March contract relates to the opening of lake transportation because March is the first month that vessels are able to move on the Great Lakes.

The May, July and September contracts all are associated with the tail end of the **old crop** supply. These contracts are tied to "cleaning out the bins" and the tail end of the crop year when grain supplies can get tight and the new crop is still in the field.

The livestock contracts are more evenly spaced. The cattle contracts appear for every other month of the year. This is because, unlike grain, cattle cannot be stored. Since cattle are continuously coming to market, the futures contracts are evenly spaced, to help in the smooth pricing of the animals over the year.

HOW FUTURES TRADE: THE MECHANICS OF TRADING

Buyers and Sellers

In any type of business, every contract must have a buyer and a seller, whether it be a futures contract, a construction contract or a leasing agreement. A futures contract has two halves: one consists of a commitment to sell at the agreed upon price and the other is a commitment to buy at the agreed upon price. To enter the futures market the producer could take either part of the contract.

Anyone who enters the futures market by taking the side of a contract that is a **commitment to sell** is said to be **short**. Anyone who has taken the side of the contract that is a **commitment to buy** is said to be **long**.

In the example with the lumber contract for the house, I made the commitment to buy the lumber on the 15th of April, so I was long. The contractor made a commitment to sell lumber to me on the 15th of April, so he was short.

Negotiating the Price

The futures price is negotiated when the contract is purchased. The seller now knows the selling price for this transaction that will happen some time hence, and the buyer knows the buying price. Trading occurs in the pit of the exchange, where price is established by open outcry. This means that many people, in one crowded area, make all of their deals out loud in front of all other traders.

Trading Futures -- The "Faceless" Aspect

Futures contracts can be traded among people countless times before they mature. As a holder of either side of the contract, a trader will never know who owns the opposite side, or if the ownership of the opposite side has changed.

Let's take an example:

Ted Brown enters the December corn futures market by taking the half of a futures contract that is a commitment to buy in the future; he is in a long position.

Ted has no idea that the short side of the contract (the commitment to sell in the future) is held by his neighbour Mary Sveinson. Mary later decides to get out of her futures position and trades it to a dentist in San Francisco who later trades it back to Ted's brother-in-law, Bob.

Over the time that Ted held the futures contract, the price of corn rose 25 cents per bushel.

Ted sees his brother-in-law once a year if he's lucky, twice if he's not. When Ted next sees

Bob they begin to talk about the corn market, and Ted takes great pleasure in hearing Bob moan about the losses he took, knowing that he had pocketed a tidy profit for himself out of the same market. However, neither of them has any idea that they had ever shared a contract!

Two important points are shown here. First, the market is faceless; you will never know who holds the opposite side of your futures contract. This is due to the fact that the individual exchange's clearing corporations take the other side of every trade, essentially becoming the buyer for every seller and the seller for every buyer. This action allows for the second point, which is that both sides of the contract trade independently. In this example, the long side of the contract was held by one person continuously, but the short side of the contract was held by three different people.

Offsetting Your Position

Did Ted end up with 5000 bushels of corn because he had taken the commitment to buy corn? Certainly Bob didn't have any real corn to deliver--he's a tax accountant! So how did Ted make money and Bob lose money in a corn market without either of them ever seeing a bushel of the corn that they were trading?

To explain this, think first about the delivery month specified on a futures contract. Ted and Bob were trading the December corn contract. The futures contract specifies that it is for corn to be delivered sometime during the delivery month. For Ted and Bob, this meant December.

Before December, making or taking delivery of the commodity is not a concern. As long as you do not own the contract by the first day of the delivery period, you do not have to be concerned about dealing with the actual physical commodity.

In the case of Ted and Bob, both had got out of the market before December, the delivery month.

There are two ways you can get out of the futures markets. One is to **offset** your position.

The term **offset** simply means to take a second position in the market that is exactly opposite to your first position. Then, you own both the buying and the selling side of a futures contract. When this happens, you are out of the market and have no further commitments.

The second way to get out of the market is to wait until the delivery period and either make or take delivery of the commodity, depending on whether your futures position is long or short.

So how did Bob sell something that he did not own? After all, he did hold the half of the futures contract that was a commitment to sell corn.

Bob's commitment was to sell corn **during the delivery month** stated on the futures contract. By offsetting the contract (by buying a 5000 bushel corn futures contract) before the delivery month, he owned both sides of the contract. In effect, Bob then had an obligation to deliver 5000 bushels of corn to himself! Since his obligation is to himself, he is considered to be out of the market.

The great majority of futures traders will offset their positions before the delivery month. In fact, out of all of the contracts that trade, only about 2% of them will ever be used to actually make or take delivery of the commodity. The other 98% of the contracts traded will be offset before the delivery date arrives.

Making a Profit in the Futures Markets

Perhaps another question has come to your mind: how does anyone make money in this market if no physical commodity changes hands?

As in any other market, people make money in the futures market by selling goods at a price higher than what they paid for them. The profit made in any transaction is always the selling price minus the purchase price. If the selling price is higher than the purchase price, a profit is made. If the selling price is lower than the purchase price, a loss is incurred.

In the Ted and Bob example, Ted made money when the price of corn rose. Ted bought futures at $2.00/bu and later sold futures at $2.25/bu, giving him a profit of $0.25/bu. The calculations of Ted's profits are shown here:

FUTURES PRICES RISE: Ted is long

Losses		Profits
	Bought	$2.00 (long)
	Sold	2.25 (short)
	Profit	$0.25

In this example, the price rose and Bob, who had sold futures, lost money. Bob sold futures at $2.00/bu and later bought futures at $2.25/bu, for a loss of $0.25/bu. Bob's losses are shown below.

Let's assume that Bob got into the market at the same price that Ted did.

FUTURES PRICES RISE: Bob is short

Losses		Profits
Sold	$2.00 (short)	
Bought	2.25 (long)	
Loss	$0.25	

Bob went short when he entered the futures market and established the selling price at $2.00/bu. When he offset the contract, the futures price was $2.25/bu. This became his buying price. Since he bought corn at a price $.25 higher than what he sold it at, Bob lost money.

What would have happened if the futures price had fallen $.25 instead of rising? Let's look at Ted's position first. If prices had dropped, Ted would have lost money because his selling price would have been lower than his purchase price. This example is shown below:

FUTURES PRICES FALL: Ted is long

Losses		Profits
Bought	$2.00 (long)	
Sold	1.75 (short)	
Loss	$0.25	

But what about Bob? He had entered the futures market by taking the short side of a contract, which is a commitment to sell in December. How can he make money?

Remember, the profit on the transaction only depends on the selling price being higher than the purchase price. When Bob entered the market on the short side, the selling price was established. When the contract is offset, Bob will obtain the long side of the contract and establish the purchase price. If the selling price is higher than the purchase price, Bob will make money.

In the second example, the price dropped. Bob, who had established the selling price when he entered the market, makes money. He established the selling price first, at $2.00/bu. He later established the buying price at $1.75/bu when he offset his position. When the price drops, the profits from being short look like this:

FUTURES PRICES DROP: Bob is short

Losses		Profits
	Sold	$2.00 (short)
	Bought	1.75 (long)
	Profit	$0.25

Bob established a selling price of $2.00/bu. when he entered the market on the short side. When he left the market by offsetting his

position, he established a buying price of $1.75/bu. The profit he makes because prices fell is $0.25/bu. For both traders, the calculation of the profit is the same. The profit will always be the selling price (short) minus the purchase price (long).

The only difference is that the **long** trader established the **purchase price first** and sets the selling price as he or she leaves the market. The **short** trader establishes the selling price first and sets the buying price as he or she leaves the market.

Financial Requirements

There are three financial requirements in futures trading. The first is the exchange fee, usually $1 to $2 levied by the exchange on every transaction. It is passed on to the trader by the brokerage. (Please note that if you are trading on a U.S. exchange, all fees and commissions will be in U.S. funds.)

Brokerage fees (commonly known as **commissions**) are another cost to the trader. These are fees charged by a broker to make your transactions, keep your accounts and offer advice. At present, "full service" commissions are about $70 to $100 per **round turn**, which is the total cost to get into and out of the market.

The third component is the margin requirement. If traders were required to lay out the total value of each contract, there would be little trading. The market wants a large volume of trading. To encourage it, traders are required to lay out only a fraction of the total value. This is "earnest money", much like a performance bond. Margin requirements are not, therefore, a cost but a deposit. The cost of this component lies in the fact that interest is not paid on funds used for margining purposes.

At the end of every trading day, all profits and losses are tallied and balanced on the books of every single participant in the market. If you made money on your contract, it will be credited to your account at the end of every day. However, if you have lost money on your position, you must pay the loss at the end of every day. The **margin requirement** is used to pay out these daily losses.

The amount you must put up front as margin requirement is based on the total value of the contract you wish to trade. For instance, at $2/bu, a corn contract for 5000 bu. is worth $10,000 U.S. The margin requirement is usually set between 5% and 10% of the total value of the contract. Therefore, to trade the corn contract, you would have to put out about $1000 U.S. as margin.

There are two parts to the margin. These are known as initial margin and maintenance margin. The initial margin is the percentage of the contract value that you are required to pay up front at the beginning of trading. If you lose money in the market, your losses will be paid out of this "earnest money".

The maintenance margin is set at a lower level than the initial margin. If you lose enough money that your account falls to the maintenance level, you must immediately send enough money to your broker to bring the account balance back up to the initial margin level.

This dreaded phone call is known as the **margin call** and it must be heeded, or your position will be liquidated and the relationship with your broker put in peril.

Money can be withdrawn from the trading account whenever the balance is above the initial margin level. You may withdraw money as long as the balance does not fall below the initial margin level.

In the course of trading the markets, margin calls will occur. No one can stay on the right side of the market forever. It is important to have a good relationship with your banker if you are considering the futures markets as a means of reducing price risk. Margin calls will occur from time to time, and this must be understood, by both you and the bank!

For example: Assume that the initial margin for a corn contract is $1000. The maintenance

margin is set at $800. This leaves a $200 cushion before any margin calls are made. The trader takes a long (buy) position on January 5th at a price of $2.00.

On January 5th, the trader entered the corn market in a long position (commitment to buy) at $2.00/bu. The next day, the corn price fell 1 cent. The total value of this price drop on a 5000 bushel contract is $50. This first $50 is taken out of the margin account.

On January 7th, the price falls another 5 cents. The total value of this drop on a full contract is $250. The margin account falls to $700.

Since the maintenance margin is set at $800, the trader must bring the margin account back up to its initial level. A $300 margin contribution is made.

The next day, the price rises 6 cents, for a $300 profit. The margin account balance is now $1300.

On January 9th, the price rises another 6 cents for another $300 profit. The margin account balance is now $1600.

The trader decides to take the profits and offsets the long position by going short. The margin account balance was at $1600, the total margin contributions were $1300, leaving a profit of $300.

Date	Closing Price	Position	Profit or Loss	Margin Contrib.	Balance
Jan 5	$2.00	Long	–	$1000	$1000
Jan 6	1.99		-$ 50	–	950
Jan 7	1.94		- 250	300	1000
Jan 8	2.00		300	–	1300
Jan 9	2.06	Short	300	–	1600

The Clearinghouse

The last aspect of trading to consider is the **clearinghouse**. Much of the importance and integrity that the futures markets have developed can be credited to this institution.

All completed transactions must go through the clearinghouse. The clearinghouse can then check the transaction and ensure that the quantity bought is equal to the quantity sold.

If there are discrepancies, they must be settled before the market opens the next day. If the error cannot be traced, the broker who initiated the trade must take a position on his or her own account that will correct the problem.

The financial accounts are also settled by the clearinghouse every day. When trading begins the next day, all accounts are balanced.

It is this guaranteed daily clearing and balancing of the accounts that gives the futures markets its financial integrity, because it allows the clearinghouse to guarantee the performance of all futures contracts traded.

To facilitate the clearing of accounts, the clearinghouse "steps in" between the buyer and seller on all completed trades. Once a trade has been completed in the pit of the exchange, the clearinghouse becomes the **intermediary** between the buyer and seller. From this point on, all money transfers go through the clearinghouse instead of directly between the buyer and seller.

By doing this, the clearinghouse becomes the buyer for every seller in the market and the seller for every buyer. This adds a tremendous liquidity to the market because you no longer have to deal with the original buyer or seller when you decide to offset your position. This was illustrated in the Ted and Bob / corn example where one side of the contract traded three times, while the other side of the contract was held by the same person continuously.

THE FLOW OF A TRADE AND THE MYSTERY OF PRICE DISCOVERY

Every day, the futures price reflects the forces of supply and demand. As these forces change, so does the futures price. The price continuously adjusts, acting as a pivot that balances the forces of supply and demand.

Many things happen when a futures trade is

transacted. The position a trader takes in the market is like a vote cast as to what direction price is moving. Which way this vote is cast depends on several powerful influences on price movement:

* fundamental supply and demand information
* technical factors
* seasonal price behaviour
* the prices of other commodities.

Through the process of **price discovery**, all of this information is translated into one common denominator: price.

The following example shows two things: the flow of a futures order from the farmer to the exchange and back, and the process of price discovery.

One hot day in July, a Huron county farmer comes in from the field and hears the noon report on the corn market, the weather report, and the usual portion of farm news.

He's been following the December corn chart and feels that prices have topped for the year with the latest weather scare. He decides that it's time to protect the price on this year's crop, and phones his broker with an order to sell a December corn contract.

Once the order is placed with the local broker, a stream of action is put in motion. The broker relays the order to the floor of the exchange in Chicago where banks of phones wait. The order is then picked up by a runner who takes the order to a company broker in the pit.

Once the broker in Chicago has the order in hand, he will look for a trade to complete it. The broker calls out the order to the rest of the traders in the pit. This is called ***open outcry****. Since the pit is a very noisy place, hand signals are also used to make sure that the order is understood.*

On the same morning, in Florida, a lawyer picks up the morning paper and reads about the recent price rise in corn caused by the hot July weather.

He also decides that it's time to enter the market, but does so on the belief that a major drought will surely come, and prices will continue to rise. He promptly calls his broker and places an order to buy December corn.

The lawyer's order is relayed to the pit the same way the farmer's order was. Deep in the December corn pit, the two brokers come together.

In the last few minutes, many sell orders have reached the trading floor, unmatched by buy orders. The price of corn begins to fall under the selling pressure. Finally, once the price had dropped 5 cents, the buyers begin to appear.

A broker for XYZ COMMODITIES cries out that he has one Dec corn contract to sell at the current price. Next to him, the broker from ABC COMMODITIES, who's just received the lawyer's order, signals "a buy" on one December corn contract at the current price.

The Huron county farmer's sell order is filled by the Florida lawyer's buy order at a price 5 cents lower than what was quoted on the noon hour farm show just a few minutes earlier.

When an order is complete, both brokers write the details on the order slip. A runner takes it back to the phone banks where the results are phoned back to the local broker. In total, the whole procedure took only a few minutes.

NOTE: Types of orders

In the commentary above, the term "order" was used rather categorically. The simplest (and potentially the most dangerous) type is the market order, giving instruction to buy or sell a specific commodity immediately at the going price. Anyone planning to trade futures or wishing to make better use of their existing dealings with, for example, their elevator should learn how to use limit and stop orders as well. The limit order is a request to execute at a particular price "or better", and the stop order is normally used as an on-going, "protective" request to liquidate a position. For example: "Buy for me one CBOT Corn contract at a price of $2.50 or better, and, if filled, maintain the order to sell one CBOT corn contract at $2.40 on a stop."

PART 2: CHARTING THE FUTURES MARKETS

INTRODUCTION

Even if you never trade a contract, the futures markets can be of help to you in making management decisions. The futures prices reflect the best information currently available to the market.

By keeping track of futures prices and understanding basic chart formations, you can develop price forecasts that can be used to make decisions about production, feeding period, storage and timing.

The art of charting and chart analysis is known as **technical analysis**. Technical analysis involves studying chart formations to interpret the information carried in the daily prices.

This is separate from **fundamental analysis**, which is concerned with interpreting supply and demand factors and their impact on price.

Technical analysis is based on three beliefs:

* prices reflect all of the information available to the market
* prices move in trends
* history repeats itself (Murphy).

Human psychology is a very important factor in how the market behaves. People react to situations in the same manner time and time again, which means history repeats itself. This is one of the basic beliefs underlying technical analysis.

If a certain chart pattern has been followed by a certain price move in the past, there is reason to believe that the same order of events will occur again. Therefore, if we see the chart pattern form, the following price move can be predicted.

Another very important belief underlying technical analysis is that prices reflect all of the information currently available.

Let's take this to an extreme example to make our point.

Suppose you wanted to read about beef genetics. You go to the bookstore and the clerk shows you a selection of eleven books: ten that cover all of the aspects of genetics and one that was a good, easily readable summary of what the first ten books had said.

You could buy the first ten books and then do the summary in your head, or you could read only the summary and learn all of what the first ten books had to offer.

Technical analysis rests on the belief that the futures prices are like the summary book, containing a summary of all the information available from other sources.

Another belief is that prices move in trends. Once prices begin to move in one direction, they are more likely to continue in that direction than to turn around. The market tends to generate momentum, and will continue to move forward rather than turn around. Technical analysis is a tool used to detect when changes in the trend are likely to happen and when they have been completed.

Why does technical analysis work? In part, it works because so many people do it. Every day, thousands of chartists are looking at the same charts, drawing on the same lines and reacting in the same manner when certain

formations occur. In this sense, technical analysis works because of a "self-fulfilling prophecy". This also makes the formations very reliable as indicators of futures price moves.

However, chartists cannot rule the market. The analysis taken from the charts has an underlying base in the fundamentals of supply and demand. When there are changes in these fundamentals, the chartists must adjust their analysis. The chartists cannot adjust the fundamentals!

READING THE FUTURES PRICES

Futures prices are reported, among other places, in major newspapers. In Ontario, you can find the futures prices in such publications as *The Wall Street Journal, The Globe and Mail, The Financial Post* and *The London Free Press.*

The **quotes**, as a day's worth of prices are called, contain six major pieces of information for each contract:

* **open:** a price that represents the range of trading during the opening moments of the day
* **high:** the highest price traded during the day
* **low:** the lowest price of the day
* **close:** a price that represents the range during the closing moments of the day
* **volume:** the number of contracts sold in a day
* **open interest:** the number of contracts outstanding
* **settlement price:** an exchange decided midpoint of the closing range

The following page shows the format that many newspapers normally follow for quotes (Table II).

DRAWING A BAR CHART

Futures prices are drawn on **bar charts**. This allows us to read the highest and lowest price of the day and the last price of the day at a glance.

A bar chart is drawn with the horizontal axis representing time; each space across the bottom of the graph represents one trading day. Price is marked on the vertical axis.

Each day's trading is shown by a bar drawn up and down from the highest price of the day to the lowest price of the day. A small horizontal line is drawn to the right of this to indicate the last price of the day. This is shown below in Figure 1.

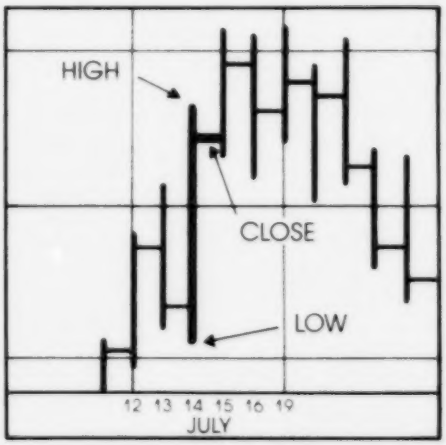

Figure 1
Detailed Example of the Bar Chart

Volume and open interest should also be recorded below the prices on the bar chart. The volume measurement is recorded by a vertical bar at the very bottom of the chart. The open interest is marked by a line above the volume. To do this, you will have to use a second scale on the vertical axis in the bottom portion of the chart.

Table II
Example Presentation of Futures Market Quotes

Chicago Mercantile Exchange

SeaHi	SeaLo	Month	High	Low	Settle	Chg
Cattle: 40,000 lbs.; cents per lb.						
76.90	68.20	OCT	73.55	73.12	73.50	+.50
75.37	62.00	DEC	75.10	74.70	74.95	+.33
74.95	69.80	FEB	75.00	74.60	74.92	+.22
75.57	70.80	APR	75.20	74.85	75.12	+.25
73.45	69.75	JUN	72.50	72.12	72.22	+.20
71.95	69.50	AUG	70.80	70.45	70.70	+.23

Est Sales	Prv Sales	Prv Open Int	Chg.
11,163	12,685	63,583	+64

Hogs: 30,000 lbs.; cents per lb.						
48.75	38.55	OCT	49.15	48.65	48.87	+.20
47.25	38.75	DEC	47.12	46.35	46.62	+.05
48.00	41.75	FEB	46.40	45.62	45.85	- .22
45.10	39.40	APR	43.50	42.75	42.85	- .30
48.70	44.25	JUN	47.85	47.25	47.70	+.03
48.95	44.95	JUL	48.10	47.40	47.90	unch
47.10	43.70	AUG	46.75	46.50	46.90	+.03
44.00	40.80	OCT	43.17	42.97	42.97	- .18

Est Sales	Prv Sales	Prv Open Int	Chg.
10,242	9,499	35,145	+271

Chicago Board of Trade

SeaHi	SeaLo	Month	High	Low	Settle	Chg
Corn: 5,000 bu.; dollars per bu.						
2.95	2.185	DEC	2.365	2.335	2.34	- .0125
2.865	2.26	MAR	2.42	2.39	2.395	- .015
2.895	2.30	MAY	2.4625	2.4275	2.4425	- .0125
2.85	2.31	JUL	2.4825	2.45	2.46	- .0175
2.71	2.29	SEP	2.415	2.38	2.3925	+.0025
2.635	2.22	DEC	2.375	2.3425	2.3575	+.01
2.55	2.42	MAR	2.44	2.42	2.43	+.0075

Est Sales	Prv Sales	Prv Open Int	Chg.
38,000	28,379	157,415	+2416

Soybeans: 5,000 bu.; dollars per bu.						
7.93	5.5075	NOV	5.585	5.43	5.4425	- .0825
7.67	5.6275	JAN	5.695	5.54	5.55	- .0925
7.74	5.75	MAR	5.8175	5.67	5.675	- .0925
7.78	5.84	MAY	5.91	5.77	5.7725	- .0875
7.31	5.895	JUL	5.965	5.82	5.835	- .0875
7.05	5.88	AUG	5.95	5.84	5.84	- .06
6.60	5.73	SEP	5.80	5.70	5.70	- .03
6.60	5.71	NOV	5.76	5.68	5.6875	- .0325
5.90	5.87	JAN			5.7725	- .0475

Est Sales	Prv Sales	Prv Open Int	Chg.
45,000	23,611	101,696	+1127

Kansas City Board of Trade

SeaHi	SeaLo	Month	High	Low	Settle	Chg
Wheat: 5,000 bu.; dollars per bu.						
4.60	3.8625	DEC	4.03	3.9875	3.99	- .0225
4.545	3.835	MAR	3.985	3.94	3.9425	- .0275
4.335	3.68	MAY	3.83	3.775	3.7775	- .0525
3.825	3.395	JUL	3.55	3.50	3.50	- .05
3.54	3.52	SEP			3.53	unch

Est Sales	Prv Sales	Prv Open Int	Chg.
Unavailable	2,791	24,949	-282

Winnipeg Commodity Exchange

SeaHi	SeaLo	Month	High	Low	Settle	Chg
Rapeseed: 20 metric tonnes; CDN$ per tonne.						
425.00	282.00	NOV	292.00	289.00	289.10	-1.40
383.30	294.80	JAN	301.00	297.00	297.00	-2.20
389.00	302.50	MAR	307.00	305.00	305.00	-1.20
343.00	316.00	JUN	317.50	314.50	314.50	-1.50
352.10	328.00	SEP			324.50	-1.00

Est Sales	Prv Sales	Prv Open Int	Chg.
Unavailable	3,080	20,114	+212

CONTINUATION CHARTS

Bar charts can also be used to chart longer term price patterns. The most common are the weekly and monthly charts.

The method of charting and analysis is exactly the same as for the daily bar charts. However, the prices used for the bars are the high, low and close over the whole week or month.

For example, on a weekly chart (Figure 2), the high would be the highest price achieved over the whole week, the low would be the lowest price achieved over the whole week and the close would be Friday's closing price.

MAJOR CHART FORMATIONS

Using Volume and Open Interest

Volume measures the amount of trading that has occurred during the day. Volume is measured by the number of contracts that change hands.

Open Interest measures the number of contracts that stand open in the market.

Volume represents the amount of trading going on, while open interest measures the total size of the market.

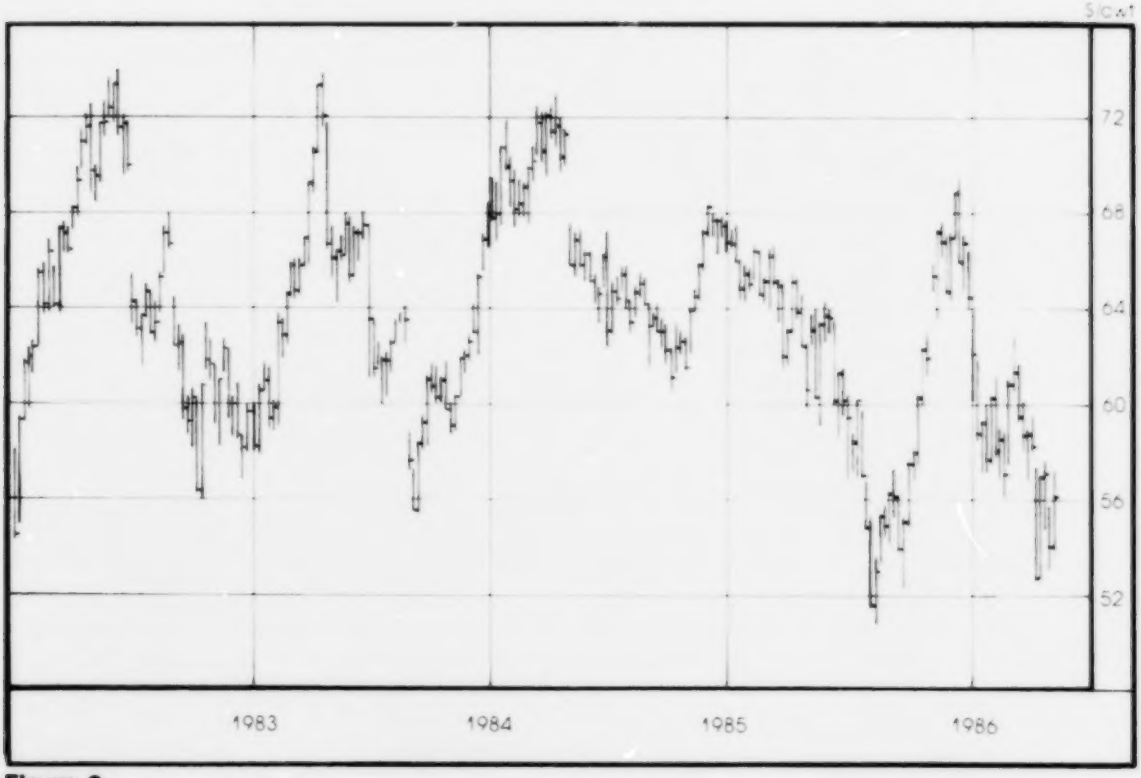

Figure 2
Example of a Continuation Chart, Live Cattle

Imagine a pond with a stream entering it at the top and leaving through the bottom. Open interest measures the size of the pool of trading, or the pond. Volume measures the stream, or the amount of trading flowing through it in a single day.

To measure open interest, count either the number of long positions or the number of short positions in the market. Since every contract has two sides, a long and a short, you need only to count one side to find the total number of contracts.

In the newspaper, you will find that the volume and open interest figures are reported a day late.

Volume and open interest are not related to each other. For example, if volume rises, it does not mean that the open interest will rise. The two change independently of each other. However, the way in which volume and open interest move can tell you whether price action is strong or weak.

The different possible combinations of price direction and volume and open directions are shown below.

* **prices increase and open interest and volume increase**

A This chart formation points to rising prices. It means that the price rise has been matched with growth in the pool of trading and the amount of trading. As the price is rising, new traders are entering the market, supporting the rise in price.

* **prices increase and open interest and volume decline**

B This is a technically weak formation. The total size of the market is shrinking and the active trading is dwindling, so the price increase has been caused by shorts (traders who were selling) going long (buying) in order to offset their positions.

Once they are out of the market, the buying pressure will be gone and the price should quit rising.

* **prices decline, open interest and volume increase**

C This chart formation points to falling prices. It means that the price drop has been matched with growth in the pool of trading and the amount of trading. As the price is falling, new traders are entering the market, reinforcing the price move.

* **prices decline, open interest and volume decline**

D This is a technically strong formation. The total size of the market is shrinking and the active trading is dwindling, so the price decline has been caused by longs (traders who were buying) going short (selling) in order to offset their positions.

Once they are out of the market, the selling pressure will be gone and the price should quit falling.

The four conditions are shown on the following page in a series of graphs (Figure 3).

One final note on open interest. Open interest tends to follow a seasonal pattern. This is easily shown in the grains markets.

Open interest, which measures the total size of the market, increases after harvest when a new crop hits the market. There is not an equivalent seasonal pattern in volume.

You can also use the volume figure to get a better understanding of what is causing the market to move. When prices are moving in a strong, upward trend, you should see volume

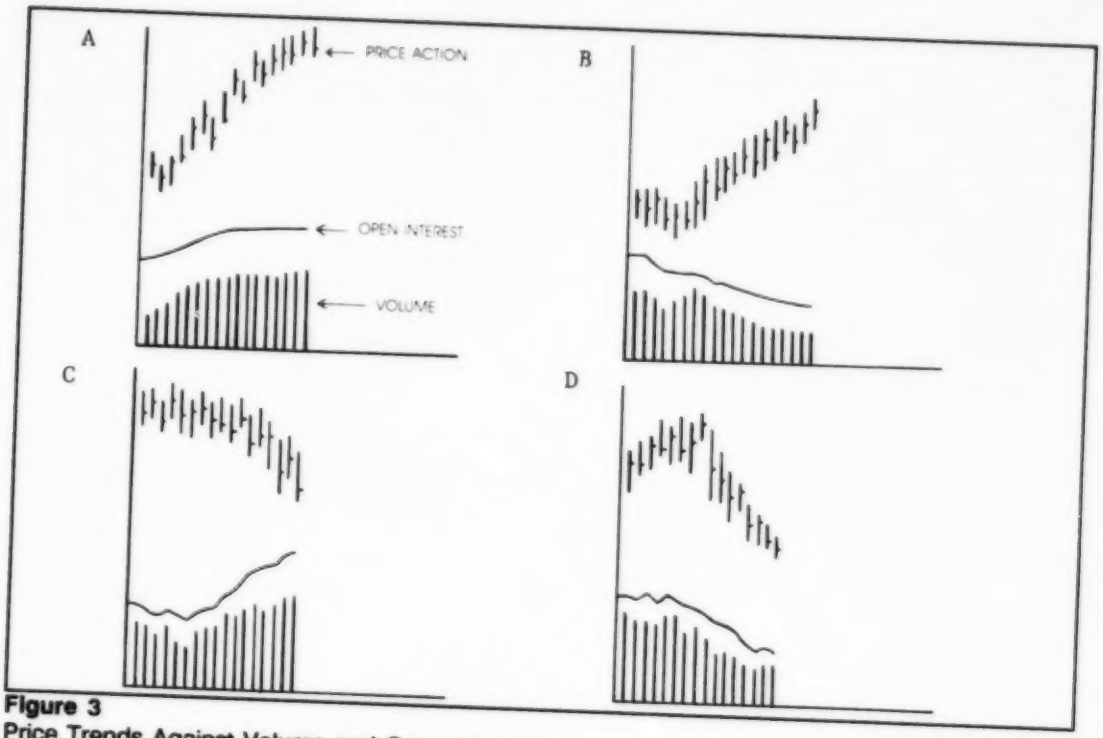

Figure 3
Price Trends Against Volume and Open Interest

increase as the price rises, and drop as the price drops. This is caused by traders entering the market in a long position (buying) and going short (selling) at the top of the rally in order to take their profits out of the market.

In a major price decline, volume will increase as the price drops, since this is the direction of the trend. Then, when the market reacts, the volume will drop.

When the market nears the end of a trend and the direction of the price movement begins to change, there should be a change in the level of volume (trading). Before the top or bottom of the market forms, the volume should drop. This indicates that traders have taken their profits out of the market and are standing aside until the new direction of price movement is established.

Once the top or bottom has been completed and the price direction (or trend) has definitely changed, volume should rise quickly. This is because all the traders who were standing aside are getting back into the market.

Remember, these are rules of thumb indicators to watch out for. This pattern is not always this definable, but it is amazing how often the pattern is repeated.

FINDING AND MEASURING TRENDS

Drawing a Trendline

Technical analysis is based on the belief that history repeats itself. Major chart formations will form frequently and can be used to predict future price movements.

Prices tend to trend in a given direction. If price has been moving up, it is more likely to continue its upward movement than it is to move down.

Once prices begin to move in one direction, they develop inertia and changes in direction are unlikely.

As a trader, profits are made by going with the trend. This means being in a short position (selling) when the price is falling and being long (buying) when the price is rising.

The most basic skill in technical analysis is identifying the trend. Prices can trend upwards, downwards or sideways. This relates to the three states that a market can be in:

* surplus (prices decline)
* deficit (prices will rise)
* equilibrium (prices trend sideways).

The market is in an **uptrend** when consistently higher tops and bottoms are formed. On Figure 4, an example uptrend has been identified.

Figure 4
An Example of an Uptrending Market

When prices are rising, the **trendline** is drawn to connect the low price of the day because these are holding the price trend up, just as a floor would.

A **downtrend** is identified by a series of lower tops and bottoms. Figure 5 shows a market in which there is a downtrend. Notice that the trendline is drawn across the daily highs when the market is moving downwards. This is like a roof, holding the prices in their downward direction.

Figure 5
An Example of a Downtrending Market

Prices can trend in a third direction: **sideways**. Often, when a downtrend is finished, the market will move sideways for some time before reversing its direction. Figure 6 shows a market in a sideways trend.

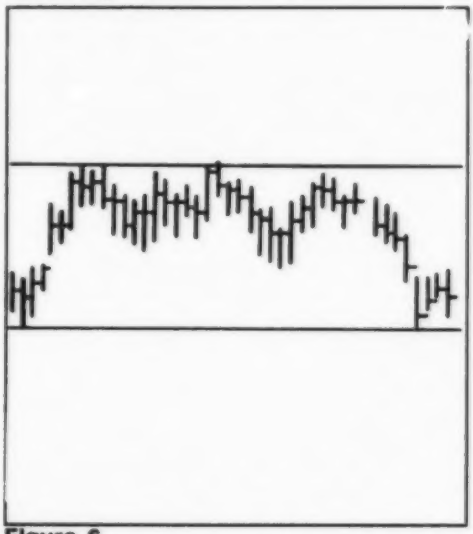

Figure 6
An Example of a Sideways Trending Market

There are two important points to remember when drawing trendlines in any direction.

* Draw the line **no steeper than 45 degrees**. If the line is steeper than this, the market is probably rising at a speed that it can't maintain. It is better to wait until the market forms a trendline at a gentler pace.

* You must have two lows that are at least 15 days apart to draw an uptrend line or two highs that are at least **15 days apart** to draw a downtrend line.

  The more points you can connect with a single straight trendline, the better. This indicates that the trend is strong. The more often highs/lows form on the line, the more traders are using that line as a guideline.

Channels

Prices often trend upward or downward in a **channel**. The trendline establishes the path the price follows up or down and forms one side of the channel.

The second side of the channel is parallel to the trendline. If the trend is up, the trendline connects the lows and the channel line connects the highs, as shown in Figure 7.

In a downtrend, the trendline connects the highs and the channel line connects the lows, also as shown in Figure 7.

Channels can be very wide and take a long time to form. Channel lines can be used to pick price levels at which to get into or out of the market.

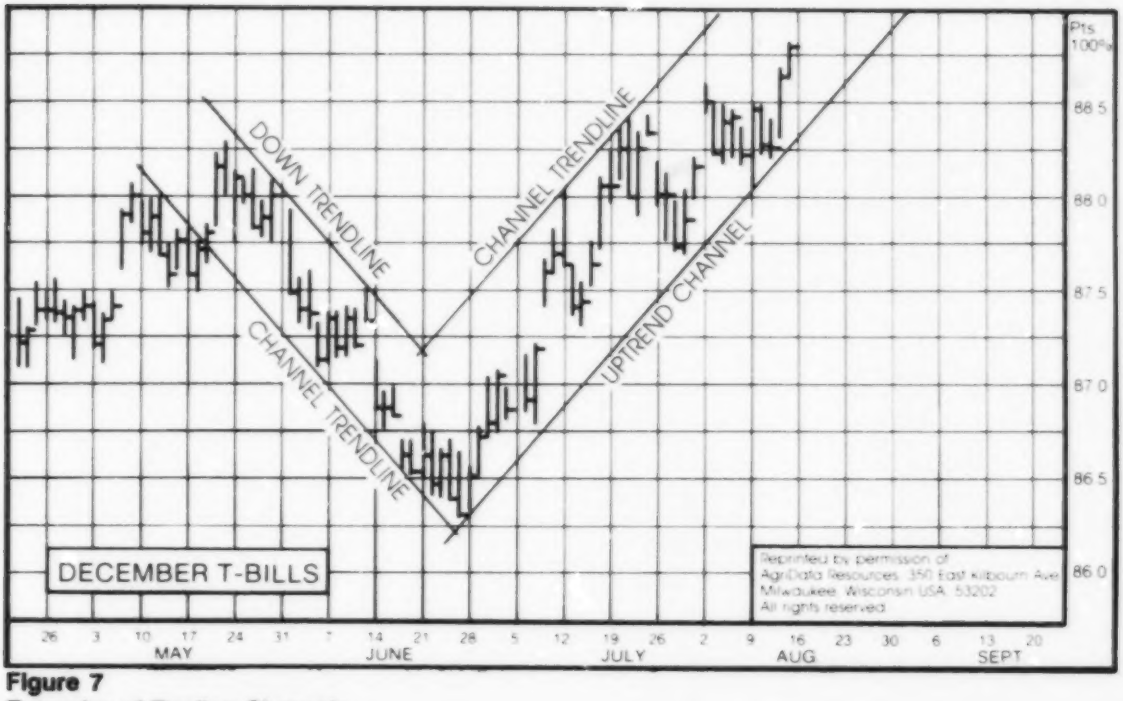

Figure 7
Examples of Trading Channels

Support and Resistance Planes

Support and resistance planes are similar to trendlines. They are horizontal lines that hold prices up (support plane) or down (resistance plane).

Prices often trade in channels, with the prices constantly rising and falling, while maintaining an overall move either up or down. The troughs and peaks of the downward and upward price moves form the support and resistance planes.

In Figure 8, you can see how the prices were moving in a downtrend and the price dropped rapidly and then rose back up until it reached the downtrend line. The point at the very bottom of the price decline now forms a support line. This support line will tend to hold prices up when traded.

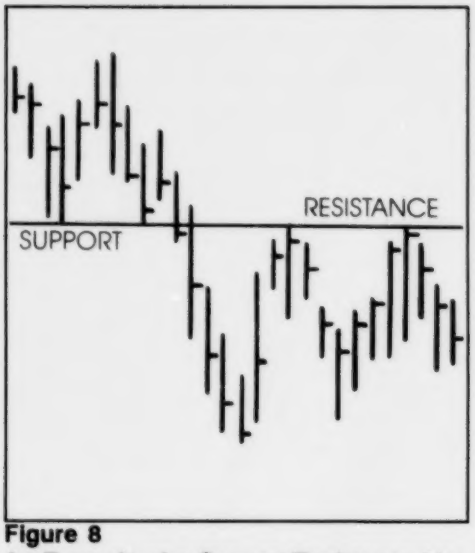

Figure 8
An Example of a Support/Resistance Line

For prices to be truly in an uptrend, every support line must be higher than the last. In a downtrend, each successive resistance line must be lower than the last for the trend to hold. If this does not happen, you are witnessing the first clues to a coming change in trend.

Support and resistance lines reverse their roles once they have been penetrated. Once a support line (holding prices up) has been penetrated, it becomes a resistance line holding prices below it. Once prices have risen above a resistance line (holding prices down) the same line becomes a support line, holding prices up.

Why do support and resistance lines form and why are they useful? The peaks and troughs represent levels of price at which selling or buying opposite to the trend enters the market. It becomes a barrier where the strength of the news, etc., which is driving the market is seriously questioned.

Gaps

Gaps are chart formations that are defined by a lack of trading transactions over a given price range. An example of a gap between two consecutive days would be if the low on the second day is higher than the high on the first day.

Gaps can be extremely useful when used to measure how far a price move may go. There are four types of gaps:

* common
* breakaway
* measuring
* exhaustion.

These are all shown graphically in Figure 9 on the following page.

The **common gap** can occur anywhere on the chart and has no particular meaning. It is not a valuable piece of information to the technical trader.

The others are extremely useful in finding the beginning of a major price move, estimating the distance of the move, and pinpointing the end of the move.

The **breakaway** often signals the completion of a major formation and the beginning of a price move.

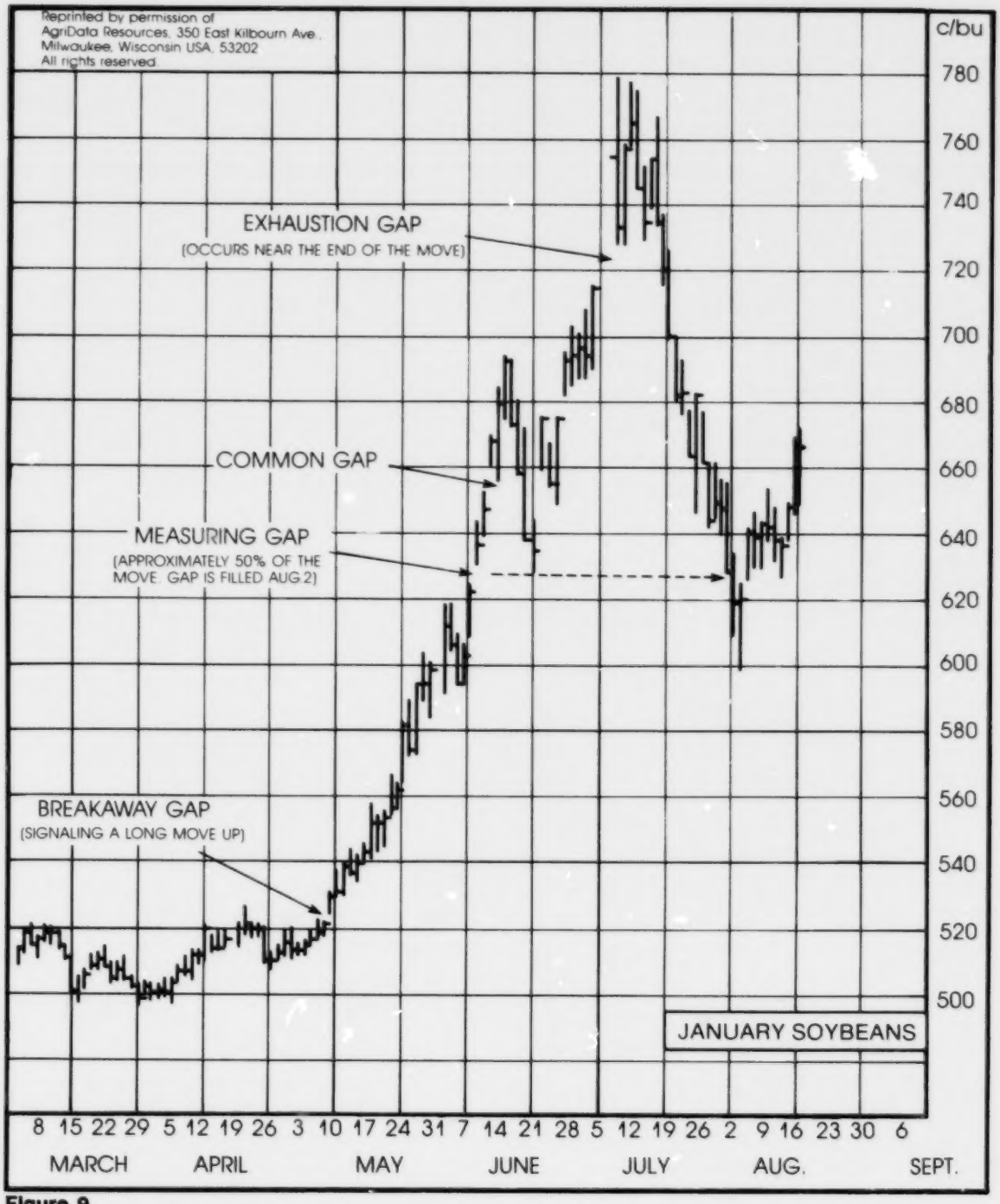

Figure 9
Examples of Various Types of **Gaps**: Breakaway, Measuring, and Exhaustion

The **measuring gap** is so-named because it's used as a measuring stick. It occurs halfway through the price move. By measuring the distance from the middle of the breakaway gap to the middle of the measuring gap, we can estimate where the exhaustion gap will occur.

The **exhaustion gap** marks the end of the price move. Often known as the sucker's surge, this gap is propelled by the entrance of large public buying. Another major group of buyers at this stage of the market are shorts who must suddenly liquidate their positions to cover margin calls.

Almost all gaps are filled. An unfilled gap can be a magnet for trading. Analysts will incorporate the unfilled gaps into their system of supports and resistance levels. This forces trading in that direction and the gap eventually fills.

Gaps on long term charts impart their influence on current trading. For instance, if there is a gap in a long-term chart three years previous, it can influence trading on the nearby contract today.

Triangles, Flags and Pennants--
Consolidation Patterns

Triangles, flags and pennants are consolidation formations in technical analysis. They serve to reinforce the trend. Consolidation formations are "resting places" in a major move that give you a second chance to buy or sell.

Triangles form when trading hits a support or resistance line that sends trading into a sideways range. The range of trading narrows each day as the bulls and bears fight it out: this forms the shape of a triangle. At the point of the triangle, the price must break in one direction or the other. If the break from the point is consistent with fundamentals, the price often flies away from the trendline in a strong advance/decline.

An ascending triangle points to rising prices: the trading hit a resistance level and the trading range narrows in an ascending path. If the bulls win, the prices will rise sharply.

A descending triangle points to lower prices: the trading has hit a support line and trading narrows in a downward path. If the bears win, prices could drop sharply.

The third triangle pattern is symmetrical. This gives no advance indication of which way prices will break. The trading narrows equally from up and down as the triangle is formed.

The last of these is shown graphically in Figure 10.

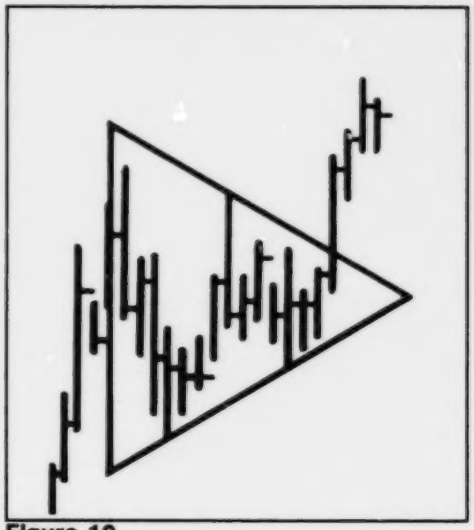

Figure 10
An Example of a Symmetrical Triangle

The rule of thumb when estimating how far prices will move when the triangle is broken is that the move will be at least as far as the vertical side of the triangle. The price break usually occurs two-thirds of the way to the point of the triangle. Volume decreases during the formation and increases sharply after the breakout.

A second consolidation formation is the **flag**. An example of a **bear flag** is shown in Figure 11. Note that the major trend is down. Prices have dropped quite rapidly and then slowly come back up. The line of quick descent

forms the **flagpole**. The channel formation that moves back towards the major trendline forms the **flag**.

This particular flag is called a **bear flag** because it indicates lower prices to come. As a rule, flags form in the direction opposite to the move to come. Thus, if the flag points upwards, the following price will be downwards. If the flag points downwards, the following price move will be upwards.

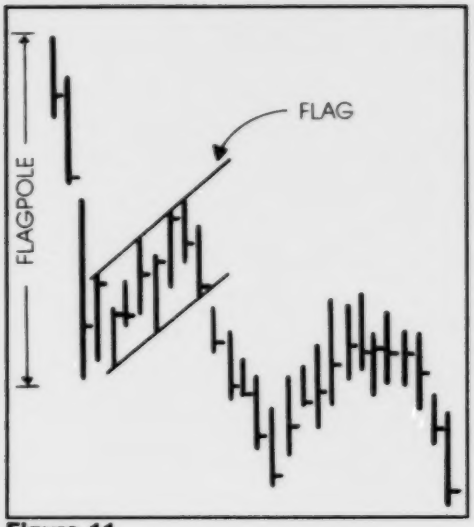

Figure 11
An Example of a Flag Formation

The flag formation can also be used to predict the length of the price move to follow. The subsequent move will be approximately equal to the length of the **flagpole**. This measurement is applied to the point where the trading breaks out of the flag formation.

Flags are considered to be 70% to 80% reliable. They are easy to see and occur frequently on the charts. The formation of a flag is confirmed if volume drops off while the flag is being formed.

A formation similar to the flag is the **pennant**. The general pattern looks like a flag except that it narrows to a point, like a pennant.

The major difference between a flag and a pennant is that the pennant points in the **same** direction as the price move to follow. If the pennant is on top of the flagpole, prices will move up. If the pennant is at the bottom of the flagpole, prices will move down. An example of a pennant is shown in Figure 12.

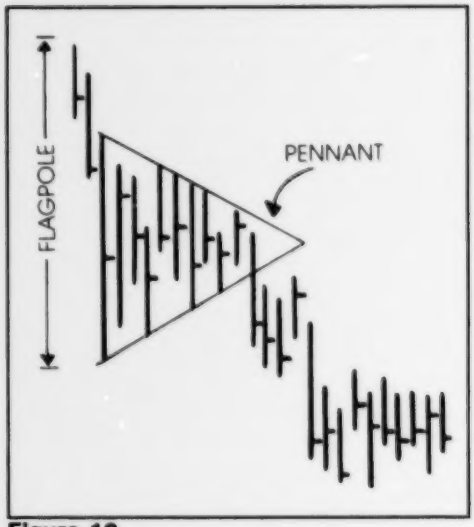

Figure 12
An Example of a Pennant Formation

Pennants are 60% to 70% reliable as indicators of price direction. However, they do not provide a means of projecting the distance of the following move.

Minor Trends

The price movements within a major trend can be very large. When the channel in which the trend moves is very large, minor trends can exist. As the price moves within the channel, but opposite to the major trend, it is referred to as a minor trend.

Violating the Trend

A trend is violated when the market trades over the trendline and **closes** beyond it. Without the close over the trendline, the trend is still

considered to be intact. The break is **confirmed** when there are two closes beyond it.

Covering Rallies

Often when the trend is broken, there will be a sudden surge/drop in the price as traders offset their positions. This is known as a covering rally.

Once those positions have been offset, the price reverses again. The traders were exerting buying pressure in order to get out of their old position (take their profits) but were not yet ready to throw their money in on the other side of the market.

During a short covering rally, expect to see volume increase while open interest decreases. As many traders hurry to get out of the market (causing higher volume), the total size of the market shrinks (causing lower open interest).

Confirming a New Trend

A new trend is said to be confirmed once the market closes above/below the top/bottom of the covering rally. This should be accompanied by a large increase in open interest. The increase in open interest means that the total size of the market is increasing with the entrance of new buyers to the market.

In general, bull markets turn quickly into bears, but bear markets usually turn sideways. The longer the sideways market, the longer and stronger the bull market that follows.

In a typical top or bottom formation, look for a round curve in the price pattern at prices higher (for tops) or lower (for bottoms) than that previously traded. The smoother and less "spikey" the formation, the more reliable it is.

Look for lower volume levels at the centre of this rounded formation. Lower volume relates to trades "standing aside" and waiting for the change in trend before taking a position in the market.

The size of the formation often indicates the size of the move to come. The longer it takes to form the top or bottom, the longer will be the following price move in the opposite direction. These rounded tops and bottoms are not the most common formations, but they are reliable and are usually followed by a large move.

Figure 14 on the following page shows good examples of the changes in trends discussed in the past three sections.

Multiple Tops and Bottoms

Multiple tops and bottoms are found where there are very strong levels of support or resistance. Trading returns to the support or resistance again and again, but cannot move beyond it. When the trend finally reverses, a large price move almost always follows.

Double tops often form very quickly, and are very reliable. However, they are often long past before you realize that you were indeed looking at a double formation. An example is offered in Figure 13.

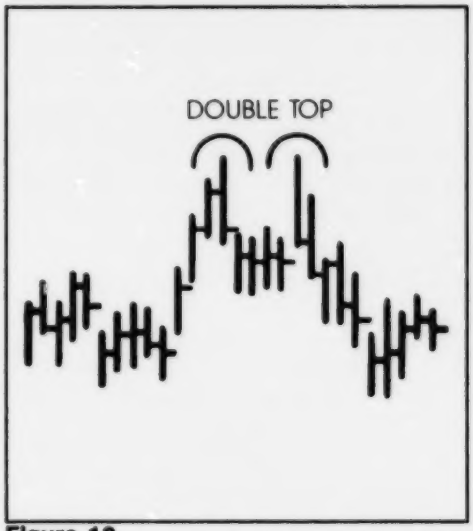

Figure 13
An Example of a Double Top Formation

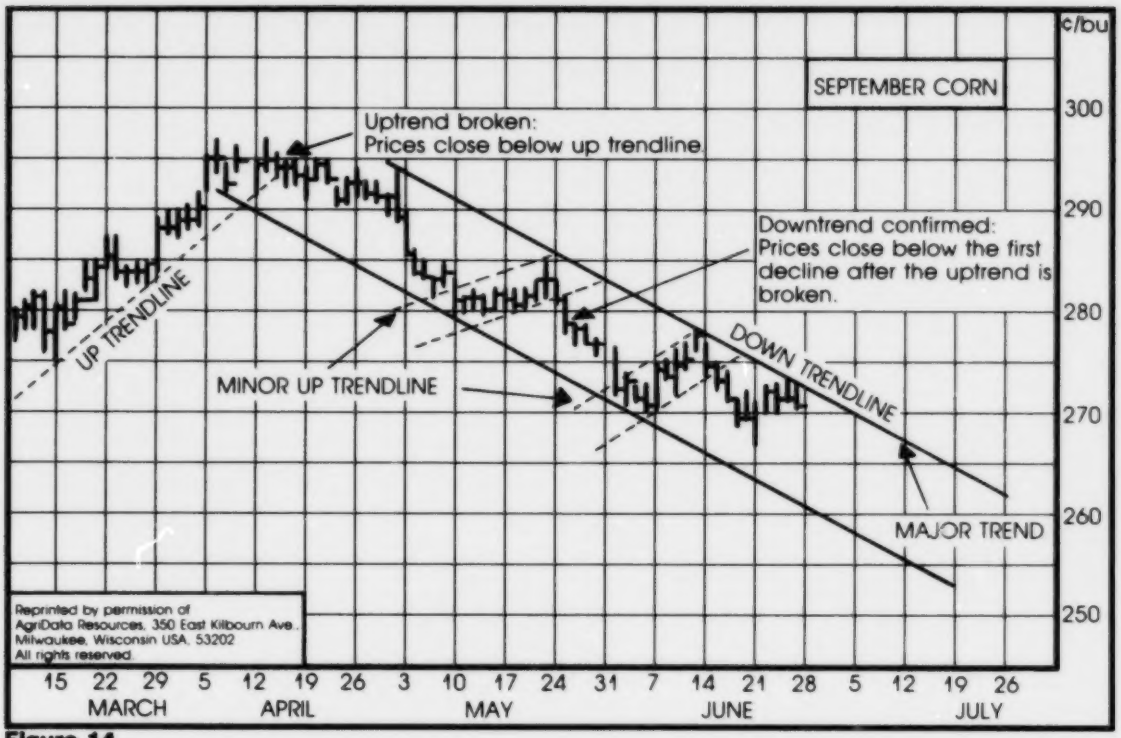

Figure 14
Major and Minor Price Trend Formations

Heads, Shoulders and Necklines

This is not an advertisement for a beauty shop or a barber! Heads, shoulders and necklines are all parts of a very reliable top or bottom formation. They form frequently and are 70% to 80% reliable.

A head and shoulders formation at the top of a market signals the end of the uptrend and a downtrend soon to come. The formation consists of three tops, with the centre hump being strikingly larger than the tops on either side.

The neckline is formed by a support line that runs below the bottom of the three peaks.

A head and shoulders at the bottom of the market looks just the same, but upside down.

Prices will remain in their original trend until the neckline is **completely broken**. This occurs when the market closes across the neckline.

The head of the formation can be used to estimate how far prices will move once the neckline is broken. This occurs when the market closes and stays across the neckline. The move should be **at least** as long as the distance from the top of the head to the neckline.

An example of this is shown in Figure 15 on the following page.

The head and shoulders will sometimes be tilted. The formation is still not completed until the neckline is completely broken. The following price move can go even further when the formation is tilted.

Reversals

A reversal means just what it suggests. It is a characteristic chart formation that leads to the

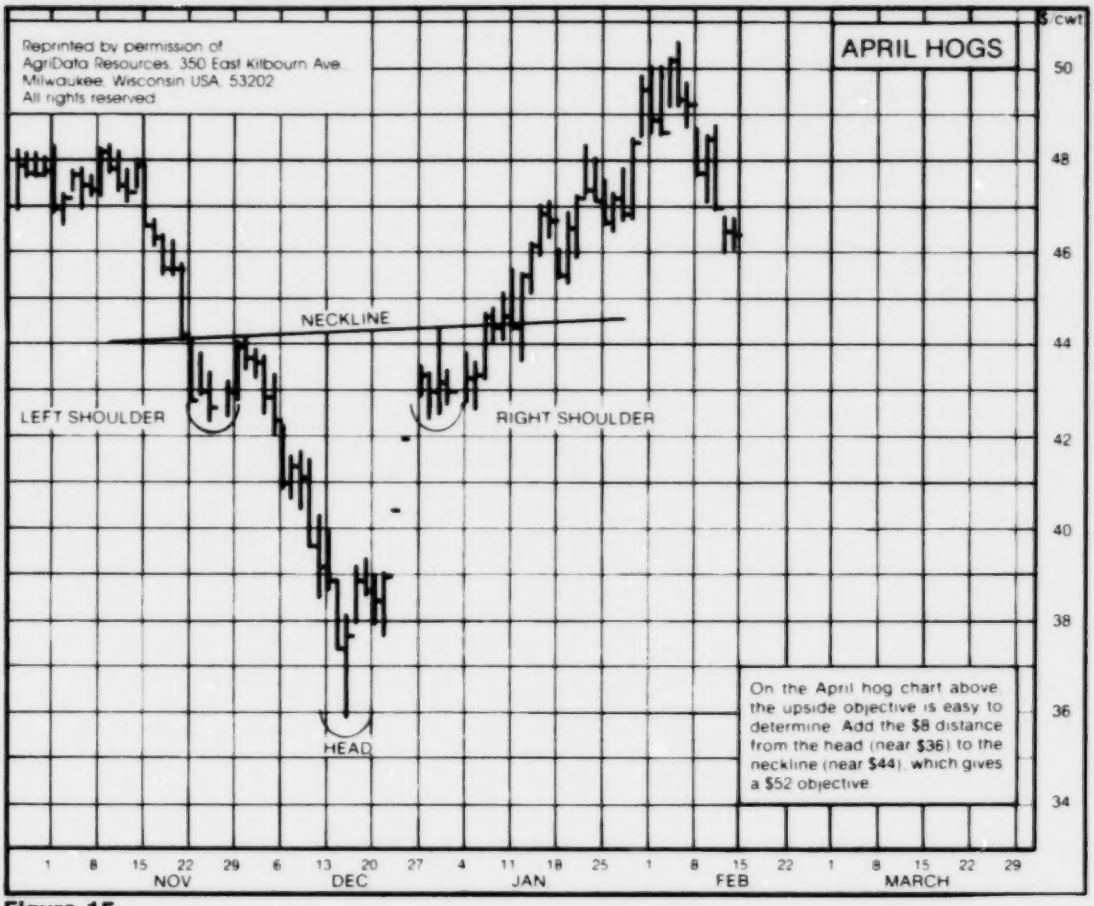

Figure 15
An Example of a Head and Shoulder Formation

market **reversing** its direction.

The most distinctive reversal pattern, and the most reliable, is the **key reversal**. These patterns can be trusted nearly 75% of the time as reversals in the trend.

Key reversals are found at the **life of the contract** highs or lows. The life of contract highs and lows are the highest prices and the lowest prices that the contract has traded at in its life. An example is shown in Figure 16 on the following page.

Usually there is a high level of volume when a key reversal is forming. This means that the level of trading is very high. No one is standing aside--the bulls and bears are battling it out on the trading floor. Only one side can win. If those traders opposite the existing trend win, a key reversal forms.

As can be seen by Figure 16, the first thing to look for is if the trading is at the highest or lowest prices of trading during the entire life of the contract. This gives you the location of the key reversal. If this first condition is not satisfied, a key reversal pattern cannot form.

The pattern of the key reversal is this: the high for the day is higher than the high of the day before, the low of the day is lower than the day before. Remember, the bulls and bears are battling, and in so doing, are pushing the highs

Figure 16
An Example of a Key Reversal Formation

and lows of the day beyond what they were the day before.

Finally, the close of the day must be lower than the day before if a **bearish key reversal** is to form or higher than the day before if a **bullish key reversal** is to form (as shown in Figure 16).

The bearish and bullish key reversal conditions are highlighted below.

* **Bearish key reversal**

  Prices have been trading at very high levels, higher than the contract has ever traded before. At its highest point, the futures traders are divided on whether the price can rise any further.

  The market is very active, and the volume of trading for the day is very high. Throughout the day the bulls and bears are battling.

  In the bloodbath, the trading range is pushed above and below the range of the day before. By the end of the day, the bears have won, and trading closes lower than the day before, indicating that prices will be moving lower.

* **Bullish key reversal**

  Prices have been trading at very low levels, lower than the contract has ever traded before. At its lowest point, the market divides. Some say prices will move lower; others, higher. Bulls and bears battle throughout the day, pushing the range of trading both above and below the day before. Volume is very high in such an active market.

  At the end of the day, the bulls are in the majority, and the close is higher than the day before, point to rising prices to come.

Island Reversal

The **island reversal** often forms at the tops of a market. It gets its name because it looks like an island; several days' trading are completely separated from the main body of trading by gaps. Large price moves often follow this information. Figure 17 demonstrates a close up example.

Hook Reversal

The **hook reversal** is so-named because it looks like a hook. A bear hook is found in a market of rising prices. Trading hits new highs, but cannot sustain itself and closes below the previous day.

A bull hook is found in a falling market and signals rising prices. Although prices are falling and new lows are created, the market fails to sustain the new lows and closes above the previous day. Figure 18 gives an example of both a bear and a bull hook.

The hook reversals occur frequently and are the least reliable of the reversal patterns.

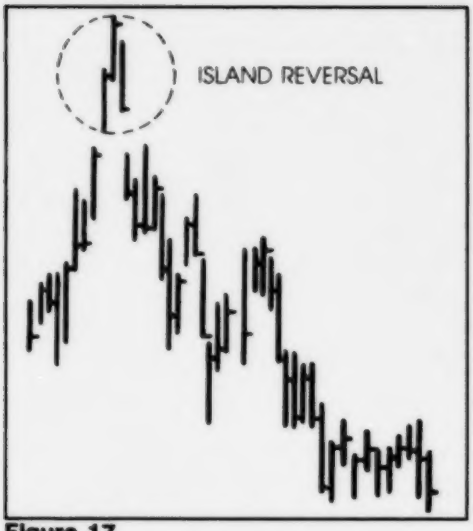

Figure 17
An Example of an Island Reversal Formation

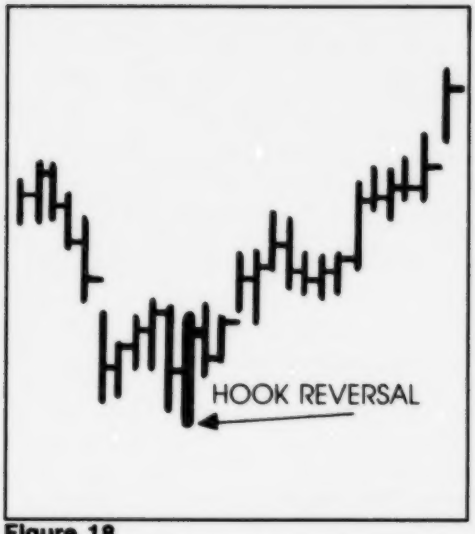

Figure 18
An Example of a Hook Reversal Formation

General Comments

At the beginning of this section, we saw that bull markets turn quickly into bear markets, but bear markets often turn sideways before prices rise again. For this reason, bearish signals at the top of a market are usually far more reliable than bullish signals at the bottom.

TOOLS FOR TECHNICAL ANALYSIS

Timing is key to the success of any trading system. Many tools have been developed by traders to help act at the right time in the market. Two of the most commonly used tools are described in this section.

Moving Averages

One of the most common tools of technical analysis is the **moving average**. Moving averages are simple to do and use–they form the basis for a trend-following strategy.

The term "moving" indicates that a set number of days are used in calculating the average. Each day, the newest price is added, the oldest price is dropped, and the average is recalculated. In this way, the average "moves" along the calendar with today's price always being included, even though the number of days in the average remains unchanged.

The following table shows the calculation of a 3-day moving average on the December 1986 cattle contract beginning on October 20th.

CALCULATING A 3-DAY MOVING AVERAGE

Date	Closing Price	3-Day Average
October 20	$ 58.00	n.a.
October 21	$ 57.25	n.a.
October 22	$ 57.57	$ 57.51
October 23	$ 57.55	$ 57.46
October 24	$ 57.60	$ 57.57

Moving averages are used two at a time. One is a "long day" moving average, while the other is a "short day" moving average. The terms mean that one average has more days of price in it than the other.

The short day average is very responsive to recent prices: today's and yesterday's prices will influence the average very strongly and quickly. The long day average is much slower to respond to new price trends because it has so many "old" prices in its system.

When the short day moving average price is higher than the long day moving average price, it indicates that prices are trending upwards. If the short day average price is lower than the long day average, it indicates that prices are trending downward. This is shown graphically in Figure 19.

For example, think of the short day average price as the average price over the last week and the long day average as the average price over the last two weeks. If this week's price is higher than the last two weeks, it means that prices are rising. If this week's price is lower than the last two weeks, prices are falling.

The crossing action of the two moving averages can be used as signals to buy or sell futures. One of the first beliefs of technical analysis was that prices move in trends. Once a trend is established, prices are more likely to continue in that direction than they are to change direction.

In a sense, the long day moving average represents the existing trend, or the current direction of the trend. The short day average represents any changes in market behaviour that are contrary to the existing trend. Whenever the short day average crosses over the long day average, it signals that the trend may have changed.

University of Guelph's agricultural economists found the following moving averages to have worked fairly well in the past. This does not mean they will be the best ones now or in the future. You could start with these figures, then change to a different formula if you find one that works better.

MOVING AVERAGES

Corn	**09 - 14 days**
Soybeans	**13 - 16 days**
Beef	**11 - 14 days**
Hogs	**nothing works well!**

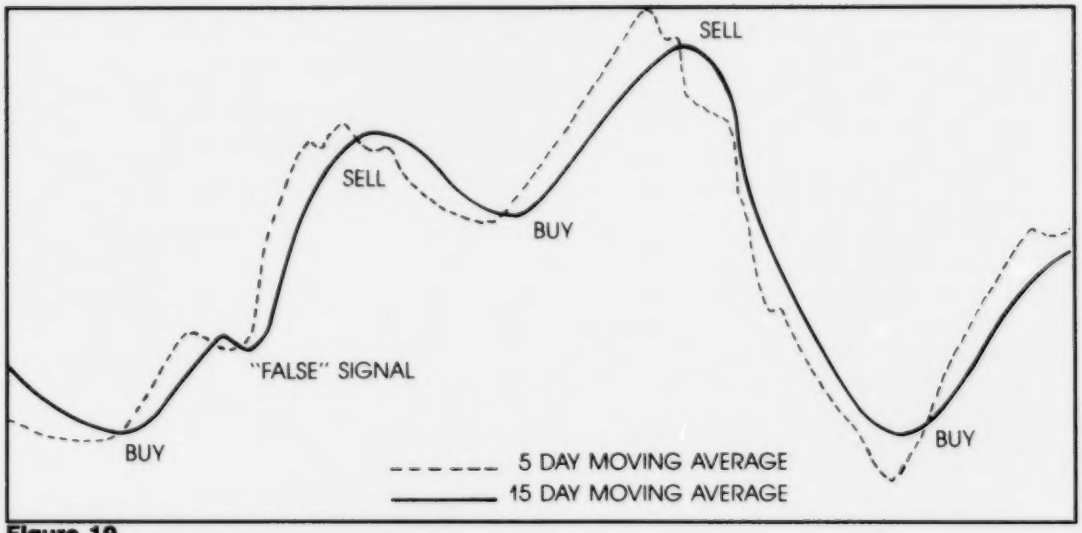

Figure 19
The Crossing Action of Moving Averages

Confirmation Rules

One problem with moving averages is that they can give false signals. It can happen that the crossing action didn't really signal a change in the trend. False signals get you into or out of the market only to find that the averages cross back in a matter of days. Too many false signals will cause commission charges to mount and will erode the profits in your hedging account.

To avoid this, you can add a second line of defense to your technical analysis. Instead of relying only on the moving averages, a **confirmation rule** is added. This is something like saying "I think we are free on Saturday, but let me check with the boss!" If the confirmation signal doesn't agree, the moving averages will be ignored.

The use of a second signal to "filter out" bad trades can be a very effective way of decreasing the total number of trades made, the total amount paid out in commissions and of improving the net profit in the hedging account.

Confirmation rules are easily added to the strategy.

One simple rule is to require that the moving averages cross by some minimum amount before the buy or sell signal is obeyed. This minimum amount is called a penetration level. If the moving averages don't achieve the penetration level, no trade is made.

Another rule is to sell (or buy) one day after the moving average signal occurs, provided the price is lower (or higher) than the day of the signal and the short-term line is still crossed over the long-term line.

PUBLICATIONS TO COME

As introduced in the forward, the purpose of this publication was to offer a general idea of the principles and mechanics of the futures market, including a taste of how this information can be used in the timing of purchase and sale decisions. The importance of the futures price itself was stressed, as well as learning how to interpret price trends through technical market analysis.

Part Two of this series of publications will cover the mechanics and use of **options** on futures contracts. This will be a comprehensive instruction manual, including advanced trading strategies.

Part Three of the series will be devoted to the development and execution of a complete risk management programme. This will start with an introduction to the concept of hedging and the basis, and demonstrate how this can be incorporated with other risk management tools.

A REPEATED WORD OF CAUTION

It was not the purpose of this publication to act as a trading manual for futures trading, either speculative or hedge. Futures trading of any type requires a considerable amount of knowledge, time, and discipline. The scope of this introductory publication could not possibly address these factors without running into textbook length.